

**AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

**LISTING OF CLAIMS:**

1. (original): A gain adjusting method for a servo control device providing speed control of inputting a difference between speed feedback supplied from a servo motor and a command value to output a torque command,

the gain adjusting method comprising the steps of:

increasing a speed loop gain to detect vibration at each of a plurality of points over a movable range of a machine,

decreasing the speed loop gain to detect the gain when the vibration becomes still as a maximum value, and

providing a set gain value corresponding to a machine.

2. (original): The gain adjusting method for a servo control device according to claim 1, wherein

the set gain value is a minimum value of gain values detected at the plurality of points.

3. (original): A method for adjusting a controlled gain in a servo control device for driving a servo motor including a vibration detecting member for detecting vibration of a control system while the control system stops, comprising the steps of:

performing running such as acceleration/deceleration at an increased controlled gain,  
and

decreasing the controlled gain, when the vibration is detected by the vibration detecting member while the control system stops.

4. (original): The method for adjusting a controlled gain according to claim 3,  
wherein

the vibration during stopping is detected from torque in the normal running is detected,  
and

when the vibration is detected by the vibration detecting member,  
the controlled gain is decreased.

5. (original): The method for adjusting a controlled gain according to claim 3,  
wherein

the vibration during stopping in the normal running is detected, and  
when the vibration is detected at an increased gain by the vibration detecting member,  
the gain at this time is determined as a maximum gain.

6. (currently amended): ~~In a servo control device for driving a servo motor~~  
~~comprising:~~

~~a vibration detecting member for detecting vibration in a control system, and~~  
~~an exciting member for adding, to a torque command, simulated disturbance torque~~

~~giving vibration at a predetermined level at an increased controlled gain;~~

~~a~~ A method for adjusting a controlled gain, comprising the step of:

selecting a control method such as an observer in a limited gain extracting method,

the limited gain extracting method including the steps of:

determining as a limited gain the gain when the vibration exceeding the predetermined level is detected by the vibration detecting member,

repeating the processing of giving the excitation having an adjusted magnitude by the exciting member,

detecting the vibration by the vibration detecting member, and

adding the simulated disturbance torque while increasing the controlled gain, until the vibration at the predetermined level is detected.

7. (original): The method for adjusting a controlled gain according to claim 6, wherein

in selecting the control method such as the observer in the limited gain extracting method, the control method with a higher value of the limited gain is selected as an optimum control method.

8. (original): The method for adjusting a controlled gain according to claim 7, wherein

the control method with a higher value of the limited gain is selected as an optimum

control method,

the method, further comprising the steps of:

increasing the simulated disturbance torque,

detecting the margin of the controlled gain where the vibration at a predetermined level is detected, and

selecting the control method providing a larger margin, wherein

the control method with the higher value of the limited gain is selected as the optimum control method,

if pertinent control methods have equal limited gains.

9. (currently amended): A gain adjusting method for a servo control device providing speed control of inputting a difference between speed feedback supplied from a motor and a command value to output a torque command,

the gain adjusting method comprising the steps of:

implementing tuning ~~in such a manner~~ that a servo control device for driving a servo motor is run,

generating a command by an external operation of an operator and a sequence of tuning build in the device, and

adjusting the gain by the obtained information upon running.